REMARKS

The Office Action mailed on December 5, 2001, has been received and reviewed. Claims 1, 2, 8, and 12-31 are currently pending in the application. Each of claims 1, 2, 8, and 12-31 stands rejected.

Reconsideration of the above-referenced application is respectfully requested.

Rejections Under 35 U.S.C. § 102

Swedberg

Claims 1, 2, 8, and 12-31 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,571,410 to Swedberg et al. (hereinafter "Swedberg").

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Swedberg discloses a miniaturized column device that is formed by laser ablating a substrate. Column 13, lines 46-48. The substrate is "any material which is UV-adsorbing, capable of being laser-ablated and which is not silicon or a silicon dioxide material such as quartz, fused silica or glass." Column 7, lines 53-56. These materials include laser ablatable polymers, ceramics, and laminates. Column 7, lines 57-64. These materials are used to avoid "the problems encountered in prior devices formed in silicon or silicon dioxide-based materials. Such problems include the inherent chemical activity and pH instability of silicon and silicon dioxide-based substrates." Column 21, lines 43-48.

Swedberg also teaches a miniaturized separation apparatus including a column within which a porous, biocompatible material, such as nylon, cellulose, polymethylmethacrylate, polyacrylamide, or agarose, may be disposed. Col. 27, lines 37-40. This biocompatible material is placed in a sample flow component and serves as a filter. Column 27, lines 33-43. The

sample flow component can also serve a capture function by using an affinity chromatography matrix, such as a biological affiant, antibody, lectin, enzyme substrate, enzyme or inhibitor. Column 27, lines 43-55.

Independent claim 1 recites a method of substantially isolating a constituent of a sample which includes, among other things, dispersing the sample in a mobile phase, applying the sample to a first end of a porous capillary column formed in a nonporous substrate, and drawing the sample across a flowfront through the porous capillary column so as to enhance separation of the constituent from the sample by at least one capture substrate. Independent claim 1 also recites that the porous capillary column comprises a matrix that includes *the same material* as the nonporous substrate.

In contrast to independent claim 1, Swedberg lacks any express or inherent description of applying a sample to and drawing the sample across a flowfront through a matrix of a porous capillary column that is formed in and from the same material as a nonporous substrate. Instead, Swedberg quite clearly teaches use of a device that includes a substrate which is formed from a UV-adsorbing, laser-ablatable material, which is not a silicon or silicon oxide material, while each column that has been formed in the substrate is filled with a *different*, porous *material*, such as nylon, cellulose, polymethylmethacrylate, polyacrylamide, or agarose.

As Swedberg does not anticipate each and every element of independent claim 1, it is respectfully submitted that, under 35 U.S.C. § 102(b), independent claim 1 is allowable over Swedberg.

Each of claims 2, 8, 12-17, and 30 is allowable, among other reasons, as depending either directly or indirectly from claim 1, which is allowable.

Independent claim 18 recites a method of identifying the presence of a constituent in a sample which includes, among other things, providing the sample in a mobile phase, applying the sample to a first end of a capillary column formed in a nonporous substrate and comprising a matrix that includes the same material as that of the nonporous substrate, drawing the sample

across a flowfront through the capillary column and in contact with a stationary phase disposed at a selected location along the capillary column, and detecting binding of the constituent with the stationary phase at the selected location along the capillary column.

By way of contrast, Swedberg does not expressly or inherently describe applying a sample to an end of a capillary column that is formed in a nonporous substrate and that comprises a matrix that includes the same material as that of the nonporous substrate. Rather, Swedberg teaches application of a sample to porous material that fills a laser-ablated column formed in a UV-transparent, laser-ablatable substrate of a different, porous material.

Therefore, it is respectfully submitted that Swedberg does not anticipate each and every element recited in independent claim 18 and that, under 35 U.S.C. § 102(b), independent claim 18 is, therefore, allowable over Swedberg.

Claims 19-29 and 31 are each allowable, among other reasons, as depending either directly or indirectly from claim 18, which is allowable.

Claim 21 is further allowable as Swedberg neither expressly nor inherently describes that detection of a constituent may be effected by "determining an electrical characteristic of [a] selected location and comparing [the] electrical characteristic to an electrical characteristic of a control."

Northrup

Claims 18, 21, and 26-29 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 5,882,496 to Northrup (hereinafter "Northrup").

Northrup discloses, among several other things, a electrophoretic separation device that includes porous columns formed internally within a silicon substrate. Electrodes are positioned at opposite ends of the substrate so as to facilitate the movement of the constituents of a sample along the lengths of the columns. Northrup also discloses methods for fabricating such an electrophoretic separation device.

Independent claim 18 recites a method of identifying the presence of a constituent in a sample which includes, among other things, providing the sample in a mobile phase, applying the sample to a first end of a capillary column formed in a nonporous substrate and comprising a matrix that includes the same material as the nonporous substrate, drawing the sample across a flowfront through the capillary column and in contact with a stationary phase disposed at a selected location along the capillary column, detecting binding of the constituent with said stationary phase at the selected location.

Northrup lacks any express or inherent description of a method that includes drawing a sample across a flowfront through a capillary column *in contact with a stationary phase* disposed *at a selected location* along the length of the capillary column. Rather, the sample separation method described in Northrup is a very simple electrophoretic process, in which a uniform coating (col. 2, lines 41-44) or no stationary phase is involved.

As Northrup does not anticipate each and every element of independent claim 18, it is respectfully submitted that, under 35 U.S.C. § 102(e), independent claim 18 is allowable over Northrup.

Claims 21 and 26-29 are each allowable, among other reasons, as depending either directly or indirectly from claim 18, which is allowable.

Claim 21 is additionally allowable because, although Northrup discloses that electrodes or arrays of electrodes may be used to cause a sample to move through a column, Northrup neither expressly nor inherently describes that an electrical characteristic may be determined at the selected location at which a stationary phase is disposed or comparing that electrical characteristic to an electrical characteristic of a control to identify the presence of a constituent in a sample.

Claim 26 is further allowable because Northrup neither expressly nor inherently describes "applying a differential pressure to [a] capillary column to effect . . . drawing . . ." of a sample therealong. Instead, the disclosure of Northrup is limited to use of the column in electrophoretic processes.

In view of the foregoing, it is respectfully requested that the 35 U.S.C. § 102 rejections of claims 1, 2, 8, and 12-31 be withdrawn.

CONCLUSION

It is respectfully submitted that claims 1, 2, 8, and 12-31 are allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing the allowance of any of claims 1, 2, 8, or 12-31 remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully Submitted,

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